Why talk about winter storms?
Each year, exposure to cold, vehicle accidents caused by wintry roads, and fires caused by the improper use of heaters injure and kill hundreds of people in the United States. Add these to other winter weather hazards and you have a significant threat to human health and safety.

A major winter storm can last for several days and can include high winds, freezing rain or sleet, heavy snowfall, and cold temperatures. People can become marooned at home without utilities or other services. Heavy snowfall and blizzards can trap motorists in their vehicles and mak walking to find help a deadly effort. Storm effects, such as severely cold temperatures, heavy snow, and coastal flooding, can cause hazardous conditions and hidden problems. The aftermath of a winter storm can impact a community or region for days, weeks, or even months.

What are winter storms?
Winter storms can range from a moderate snow over a few hours to a blizzard with blinding, wind-driven snow that lasts for several days. Some winter storms are large enough to affect several states, while others affect only a single community. Many winter storms are accompanied by dangerously low temperatures and sometimes by strong winds, icing, sleet, and freezing rain.

Winter storms are defined differently in various areas of the country, and each area is equipped differently to deal with the challenges and hazards of severe winter weather. A snowstorm that would be unremarkable in Buffalo, N.Y., could bring a city in the southern states to a standstill.

What damages can snow cause, & what are different kinds of snow?
Heavy snow can immobilize a region and paralyze a city, stranding commuters, closing airports, stopping the flow of supplies, and disrupting emergency and medical services. Accumulations of snow can cause roofs to collapse and knock down trees and power lines. Homes may be isolated for days. In urban areas, the cost of snow removal, damage repair, and lost business can have severe economic impacts.

Various intensities of snow are defined differently:

- Blizzard describes winds of 35 miles (56 kilometers) per hour or more with snow and blowing snow that reduce visibility to less than one-quarter mile (0.4 kilometer) for at least three hours.
- Blowing snow describes wind-driven snow that reduces visibility. Blowing snow may be falling snow and/or snow on the ground that is picked up by the wind.
- Snow squall describes a brief, intense snow shower accompanied by strong, gusty winds. Accumulation from snow squalls can be significant.
- Snow shower describes snow that falls at varying intensities for short durations with little or no accumulation.

What damages can ice cause, & what are the different kinds of ice?
Heavy accumulations of ice can bring down trees and topple utility poles and communication towers. Ice can disrupt communications and power for days while utility companies repair extensive damage. Even small accumulations of ice can be severely dangerous to motorists and

pedestrians. Bridges and overpasses are particularly dangerous because they freeze before other surfaces.

Ice forms in different ways:

- Sleet is rain that freezes into ice pellets before it reaches the ground. Sleet usually bounces when hitting a surface and does not stick to objects; however, it can accumulate like snow and cause roads and walkways to become hazardous.
- Freezing rain (also known as an ice storm) is rain that falls onto a surface that has a temperature below freezing. The cold surface causes the rain to freeze so the surfaces—trees, utility wires, vehicles, and roads—become glazed with ice. Even small accumulations of ice can cause.

What is winter flooding?
Winter flooding can result from winter storms or long periods of cold temperatures, and it can cause significant damage and loss of life. The winds of intense winter storms can cause widespread tidal flooding and severe beach erosion along coastal areas. Long cold spells can cause rivers and lakes to freeze so that when a rise in the water level or a thaw breaks the ice into large chunks, the chunks become jammed at man-made and natural obstructions. These ice jams can act as dams, resulting in severe flooding. In addition, the sudden thawing of a heavy snow pack can often lead to flooding.

How can I protect myself in winter storms?
Winter storms are considered deceptive killers because most winter storm deaths are related only indirectly to the storms. Overall, most winter storm deaths result from vehicle or other transportation accidents caused by ice and snow. You should avoid driving when conditions include sleet, freezing rain or drizzle, snow, or dense fog. These are serious conditions that are often underestimated, and they make driving—and even walking outside—very hazardous.

Exhaustion and heart attacks brought on by overexertion are two other common causes of deaths related to winter storms. Cold temperatures compound the strain of physical labor on a person's body. Tasks such as shoveling snow, pushing a vehicle, or even walking in heavy snow can cause a heart attack, particularly in people who are older or not used to high levels of physical activity. Before tackling strenuous tasks in cold temperatures, you should carefully consider your physical condition, the weather factors, and the nature of the task. If you are not sure how much you can safely do, you should avoid all heavy work in cold temperatures.

You should also dress to protect yourself from frostbite and hypothermia. When outside in cold temperatures, wear warm, loose-fitting, lightweight clothing in several layers. If you get too warm, you can remove one or more layers and if you get too cold you can add layers, so you can avoid the sweat-chills cycle. Your outer garments should be tightly woven, water repellent, and have a hood. Wear a hat. Half of your body heat can be lost from your head. Mittens, snug at the wrist, are better than gloves. Try to stay dry. If it is extremely cold, cover your mouth to protect your lungs.

Home fires occur more frequently in the winter because people do not take the proper safety

precautions when using alternative heating sources. Be sure all heating sources are installed according to local codes and permit requirements. To protect yourself, be sure that you never leave a fire unattended, that you dispose of ashes properly and only after they are completely cold, and that you operate and position space heaters only according to the manufacturer's instructions. Use only space heaters approved by an independent testing laboratory. Fire during winter storms is exceptionally dangerous because conditions may make it difficult for firefighters to get to the fire, and the water needed to fight the fire may be frozen.

In addition, every winter people are killed by carbon monoxide (CO) emitted by fuels they are using to heat their homes. Never operate unvented fuel-burning appliances in any closed room or where people are sleeping. CO poisoning from fuel-burning appliances kills people each year in the United States. Never use gas appliances such as ranges, ovens, or clothes dryers to heat your home. Do not use charcoal grills indoors or in attached garages.

Never use a portable generator in an enclosed or partially enclosed space, including in your home, or in a garage, basement, crawl space, or other partially enclosed area, even with ventilation. Opening doors and windows or using fans will not prevent CO buildup. Locate a portable generator outdoors and away from doors, windows, and vents that could allow CO to come indoors. Portable generators can produce high levels of deadly CO very quickly. In addition to producing toxic engine exhaust, portable generators can cause electric shock or electrocution and fire.